Symposium on the Relevance and Importance of the History of Mathematics in Present Times in India

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The Symposium, financed by the University Grants Commission, New Delhi, took place at Allahabad University from March 23 to 25, 1985, along with the Silver Jubilee Celebrations of the Allahabad Mathematical Society. (The Sixth Annual Conference of the Indian Society for History of Mathematics had also been scheduled for this time, but was postponed.) The inauguration of the function took place in the Vizianagraram Hall of Muir Central College on March 23, 1985. Chief Justice Mr. M. N. Shukla of the Allahabad High Court was the Chief Guest.

In his inaugural speech Professor T. Pati, Head of the Department of Mathematics, University of Allahabad, touched on several aspects of the history of mathematics including the problem of pure versus applied mathematics. He quoted D. Hilbert, saying that there is no conflict between pure and applied mathematics as they have nothing to do with each other!

The Chairman, Professor U. N. Singh, President of the Allahabad Mathematical Society, presented a survey of various aspects of mathematical education and research in India. It was announced that the Allahabad Mathematical Society will soon expand its activities.

The first academic session of the Symposium was held on March 24, 1985. In his introductory remarks, Dr. S. R. Sinha, Chairman of the session, pointed out that in contrast to 10 years ago, when few Indian scholars and teachers spoke or wrote about the history of mathematics, there is today widespread interest in the subject. He added that he had found even greater interest in the field at the universities in the United States, which he visited in 1980.

A brief talk was given by Professor Parmanandji, retired Professor of History, Allahabad University, who said that since "history makes a man wise," there is no doubt that history will make every subject more interesting and useful.

The principal speaker of the session was Dr. R. C. Gupta (Ranchi), who spoke at length on "Relevance and Importance of the Study of the History of Mathematics in Present Times in India." He stated that J. W. L. Glaisher's words, that "no subject loses more than mathematics by any attempt to dissociate it from its history," are especially applicable to India, which has a rich and continuous mathematical tradition of 5000 years. The history of a subject is essential to scholars and teachers and is necessary for full mastery of the subject. Moreover, the history of mathematics can generate interest in a subject which students might otherwise consider to be dull. With so many new materials and sources coming to light, our knowledge of the history of mathematics has been changing rapidly. Indian

scholars must not neglect the study of the history of mathematics, especially at a time when they are trying to catch up with the developed countries in various fields and disciplines. Without a knowledge of the history of mathematics, we cannot give due credit for discoveries, nor can we correct misplaced credit or explain even minor matters, such as the origin of terms like "sine" (in trigonometry), *karna* ("ear") for hypotenuse, and *trijyā* ("tri-sine") for radius, or concepts like "third diagonal of a (cyclic) quadrilateral."

The next speaker was Professor K. P. Singh (Varanasi), who also emphasized the importance of the history of mathematics for mathematics education, arguing that by excluding it from teaching mathematics we take away the most thrilling part of the subject. Adding that in his opinion the history of mathematics is primarily the history of geometry, he went on to sketch a history of geometry from the Ahmes papyrus (1700 B.C.) to the discovery of non-euclidean geometries, which he considers to be the most important event in the history of mathematics in the 19th century.

Professor M. C. Chaki (Calcutta) spoke on the "Development of Geometry in India in the 19th Century" a project on which he is currently working under the Indian National Science Academy, New Delhi. He discussed the papers published by Asutosh Mookerjee (1864–1924), who took a keen interest in the history of mathematics.

Dr. S. A. Paramhans (Simla), in his talk, "Scope of History of Mathematics in India in the Present Era," quoted from an ancient Indian passage in Sanskrit, that "mathematics helps in concentration."

A paper entitled "Swami Bharati Krishna Tirthaji and His Novel Method of Factorization" was delivered by Dr. R. S. Lal (Siwan).

In the session held on March 25, 1985, Dr. P. Jha (Supaul) read a paper, "Bhāskara's Works in Mithilā," and Dr. P. Singh (Hajipur), one on "Permutations, Combinations, and Other Selected Topics in Sanskrit Prosody." According to Dr. Singh, Nārāyaṇa Paṇḍita (A.D. 1356) had already stated the Binomial Theorem for any positive integral index.

During this session, there were discussions on designing courses in the history of mathematics, especially for students in India. Dr. S. R. Sinha outlined his suggestions for the syllabi of such courses to be given at all levels, from the secondary school level to postgraduate courses. Dr. G. Singh (Arrah), Dr. B. L. Sharma (Allahabad), Professor M. C. Chaki (Calcutta), and Professor T. Pati (Allahabad) also expressed their views on the matter. It was felt, however, that more consideration must be given to this subject before final recommendations are made.

During the course of the meeting several sessions of a symposium on "Mathematics in India by 2001 A.D." took place as a part of the Silver Jubilee of the Allahabad Mathematical Society. Most of the speakers who participated in this second symposium used aspects of the history of mathematics in India during the last 80 years to attempt to predict the mathematical discoveries that will have been made in India by the turn of the century.

Scarcely three weeks after the Symposium had ended, we received with great sorrow the news that Dr. S. R. Sinha, Director of the Symposium, had died of a massive heart attack during the night of April 15/16, 1985. Born in 1931, Dr. Sinha (Allahabad University) was active in many scholarly and professional organizations, including the Allahabad Mathematical Society (Secretary, 1958–1985), Allahabad University Mathematical Association (Editor, 1956–1961), Indian Science Congress Association (Sectional President, 1974–1975), Indian Society for History of Mathematics (Academic Secretary, 1977–1980), Mehta Research Institute (Incharge, 1976–1983), Indian Mathematical Society (Academic Secretary since 1981). In recent years he had become increasingly involved in the history of mathematics, and in March of 1985, a doctoral thesis in this subject, prepared under his direction, was submitted to the University. His sudden and untimely death is a great loss to those who work in the field of the history of mathematics.

III Congrès de la Societé Espagnole d'Histoire des Sciences

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Le Congrès a lieu tous les deux années. Dans cette édition, plus de cent communications ont été présentées dans les cinq sections déterminées par le Comité Organisateur. On a eu aussi dix professeurs de catégorie internationale spécialement invités.

En ce qui concerne l'Histoire des Mathématiques, on peut souligner, parmi les professeurs invités:

VICTOR GÓMEZ PIN, *Université du Pays Basque:* "Categoría de cualidad y concepto de variable en el cálculo diferencial"

Un analyse de la catégorie de qualité et du concept de variable dans la lumière de la réflexion de Hegel sur le Calcul Différentiel dans sa *Science de la Logique*. Ambiguïté dans la détermination de l'état ontologique des différentiels.

EBERHARD KNOBLOCH, *Université de Berlin:* "Leibniz and His Mathematical Heritage"

L'exposé contient quatre parties ou l'on répond aux questions suivantes: 1. Les problèmes de la recherche de Leibniz mis en lumière par son important héritage mathématique encore inconnu. 2. Six aspects caractéristiques des manuscrits mathématiques. 3. Ses études algébriques sur la Théorie des déterminants et des